

WHAT IS CLAIMED IS:

1 1. A lip assembly comprising:
2 a lip having an upper surface, a lower surface, a front portion, a rear portion, a
3 plurality of holes disposed between the front portion and the rear portion and extending from
4 the upper surface to the lower surface, and a plurality of support members, wherein each
5 support member is disposed adjacent to a hole from the plurality of holes and inhibits lateral
6 movement of a tooth assembly coupled to the hole; and
7 a plurality of tooth assemblies extending away from the lip and respectively
8 coupled to the lip via the plurality of holes.

1 2. The lip assembly of claim 1 wherein the lip is U-shaped.

1 3. The lip assembly of claim 1 wherein the plurality of holes is a first
2 plurality of holes, and wherein the lip further comprises a second plurality of holes disposed
3 at the front portion of the lip; and wherein the lip assembly further comprises:
4 a plurality of lip shrouds on the front portion of the lip, wherein the lip shrouds
5 in the plurality of lip shrouds are respectively coupled to the lip via the second plurality of
6 holes.

1 4. The lip assembly of claim 3 wherein the front portion includes
2 projections and valleys, and wherein each of the second plurality of holes are disposed
3 between adjacent valleys.

1 5. The lip assembly of claim 1 wherein each of the tooth assemblies
2 comprise:
3 a tooth, an adapter, and an adapter shroud, wherein the adapter shroud is
4 disposed between the adapter and the tooth.

1 6. The lip assembly of claim 1 wherein the lip comprises steel.

1 7. The lip assembly of claim 1 wherein each hole of the plurality of holes
2 is disposed between a pair of support members, and wherein one tooth assembly is received
3 between the pair of support members.

1 8. The lip assembly of claim 1 wherein the support members are ribs.

1 9. The lip assembly of claim 1 wherein the support members are disposed
2 at the lower surface of the lip.

1 10. The lip assembly of claim 1 wherein the lip further comprises a
2 plurality of block elements disposed at respective ends of the tooth assemblies.

1 11. A lip assembly comprising:

2 (a) a U-shaped lip having (i) an upper surface, (ii) a lower surface, (iii) a front
3 portion having projections and valleys, (iv) a rear portion, (v) a first plurality of holes
4 disposed between front portion and the rear portion and extending from the upper surface to
5 the lower surface, (vi) a second plurality of holes disposed at the front portion, (vii) a
6 plurality of ribs at the lower surface of the lip, wherein each hole of the first plurality of holes
7 is disposed between a pair of ribs to inhibit the lateral movement of a tooth assembly
8 disposed between the pair of ribs, and (viii) a plurality of lip shrouds respectively disposed on
9 the projections of the front portion of the lip; and
10 (b) a plurality of tooth assemblies extending away from the lip and
11 respectively coupled to the lip via the first plurality of holes.

1 12. The lip assembly of claim 11 wherein the pair of ribs are spaced by a
2 distance approximately equal to the width of the tooth assembly disposed between the pair of
3 ribs.

1 13. The lip assembly of claim 11 wherein the ribs are welded to a main
2 body of the lip.

1 14. The lip assembly of claim 11 wherein the lip further comprises a
2 plurality of block members respectively disposed at the ends of the tooth assemblies.

1 15. An excavation bucket assembly comprising:
2 (a) an excavation bucket body having a front portion; and
3 (b) a lip assembly comprising (i) a lip having an upper surface, a lower
4 surface, a front portion, a rear portion, a plurality of holes disposed between the front portion
5 and the rear portion and extending from the upper surface to the lower surface, and a plurality
6 of support members, wherein each support member is disposed adjacent to a hole from the
7 plurality of holes and inhibits lateral movement of a tooth assembly coupled to the hole, and
8 (ii) a plurality of tooth assemblies extending away from the lip and respectively coupled to
9 the lip via the plurality of holes.

1 16. The excavation bucket assembly of claim 15 wherein the lip is
2 U-shaped.

1 17. The excavation bucket assembly of claim 15 wherein the plurality of
2 holes is a first plurality of holes, and wherein the lip further comprises a second plurality of
3 holes disposed at the front portion of the lip; and wherein the lip assembly further comprises:
4 a plurality of lip shrouds on the front portion of the lip, wherein the plurality
5 of lip shrouds are respectively coupled to the lip via the second plurality of holes.

1 18. The excavation bucket assembly of claim 15 wherein the front portion
2 includes projections and valleys, and wherein each of the second plurality of holes are
3 disposed between adjacent valleys.

1 19. The excavation bucket assembly of claim 15 wherein each hole is
2 disposed between a pair of support members, and wherein a tooth assembly is received
3 between the pair of support members.

1 20. The excavation bucket assembly of claim 15 wherein the support
2 members comprise ribs.

1 21. The excavation bucket assembly of claim 15 wherein the support
2 members are disposed at the lower surface of the lip.

1 22. The excavation bucket assembly of claim 15 wherein the plurality of
2 holes is a first plurality of holes, and wherein the lip assembly further comprises:
3 a second plurality of holes disposed at the front portion of the lip;
4 a plurality of lip shrouds respectively coupled to lip via the second plurality of
5 holes and disposed on the front portion of the lip;
6 wherein the plurality of support members are disposed at the lower surface of
7 the lip and are ribs.

1 23. The excavation bucket assembly of claim 15 wherein each of the tooth
2 assemblies comprise:
3 a tooth, an adapter, and an adapter shroud, wherein the adapter shroud is
4 disposed between the adapter and the tooth.

1 24. The excavation bucket assembly of claim 15 wherein the support
2 members are ribs, and wherein a pair of ribs is present between adjacent holes from the
3 plurality of holes.

1 25. The excavation bucket assembly of claim 15 wherein each hole is
2 disposed between a pair of support members disposed at the lower surface of the lip, and
3 wherein a tooth assembly from the plurality of tooth assemblies is received between the pair
4 of support members.

1 26. The excavation bucket assembly of claim 15 further comprising a
2 plurality of block members disposed at respective ends of the tooth assemblies.